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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,960	04/04/2002	Roy C Krohn	KRO0105PUSA	8950

22045 7590 10/14/2003

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EXAMINER	
BERMAN, SUSAN W	

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/089,960	KROHN, ROY C	
	Examiner	Art Unit	
	Susan W Berman	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7-9 and 21-25* is/are rejected.

7)☒ Claim(s) *11,17-19,21,22,24,25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10-02 pages 1-7
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Objections

Claims 11, 17-19, 21, 22, 24 and 25 are objected to because of the following informalities: With respect to claim 11, it is not clear what is intended to be set forth by the phrase "caused to form the coating it cures". With respect to claim 17, line 1, it is not clear what is intended by the phrase "method of a substrate". Claims 21, 22, 24 and 25 have lines drawn through the claims, however, these claims have not been officially canceled. Claims may be canceled by an amendment directing that the claims be canceled. It is noted that upon cancellation of claim 22, the dependency of claim 23 must be amended. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 21, 22, 24 and 25 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling, with respect to claim 21 and 22, for an electro luminescent phosphor that is a "copper activated zinc sulfide" and, with respect to claim 25, for electro luminescent compositions comprising an electro luminescent phosphor, does not reasonably provide enablement for with respect to claim 21, any electro luminescent phosphor comprising a sulfide and, with respect to claim 25, for compositions comprising a phosphor that is not an electro luminescent phosphor. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. See page 4, lines 6-18.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 7, 8, 9, 21-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kameyama et al (5,076,963) in view of GB 1,550,382. Kameyama et al disclose compositions comprising an EL phosphor, such as ZnS:Cu, a photoinitiator and (meth)acrylate monomers, oligomers or prepolymers. Isobornyl acrylate is not specifically mentioned. See column 3, lines 47-53, column 4, lines 9-44, column 5, lines 1-14 and lines 25-31, and Example 18. GB '382 teaches the advantages of isobornyl acrylate as low volatility reactive diluent in radiation curable compositions. See page 1, line 39, to page 2, line 19. GB '382 teaches adding modifiers but does not mention EL phosphors.

It would have been obvious to one skilled in the art at the time of the invention to employ isobornyl acrylate as an acrylate monomer instead of or in addition to TMPTA or neopentyl glycol di(meth)acrylate in the compositions taught by Kameyama et al, as taught by GB '382. Kameyama et al provide motivation by teaching that "any of the compounds which are solidified upon exposure to radiation" can be used in the disclosed invention (column 4, lines 9-11). GB '382 provides motivation by teaching the advantages of the use of isobornyl acrylate as low volatility diluent in radiation curable compositions instead of TMPTA or neopentyl glycol di(meth)acrylate. See the advantages taught from page 1, line 39, to page 2, line 19.

Claims 1, 8, 9 and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over deSouza (4,684,353) in view of GB 1,550,382. deSouza discloses resins containing 60-78% by wt. of an EL

phosphor. Example 6 discloses compositions comprising acrylate monomers, a photoinitiator and a ZnS:Cu electroluminescent (EL) phosphor. See column 4, lines 3-19 Isobornyl acrylate and acrylated urethane oligomers are not mentioned. GB '382 teaches the advantages of isobornyl acrylate as low volatility reactive diluent in radiation curable compositions. See page 1, line 39, to page 2, line 19. GB '382 teaches adding modifiers but does not mention EL phosphors.

It would have been obvious to one skilled in the art at the time of the invention to employ acrylate monomers in the compositions taught by deSouza et al because compositions containing acrylate monomers are employed in the examples. It would have been obvious to one skilled in the art at the time of the invention to employ isobornyl acrylate as an acrylate monomer instead of or in addition to the (meth)acrylate monomers disclosed in the compositions taught by deSouza et al, in view of the teaching of GB '382. deSouza et al provide motivation by teaching compositions comprising analogous acrylate monomers in the Examples. GB '382 provides motivation by teaching the advantages of the use of isobornyl acrylate as low volatility diluent in radiation curable compositions. See the advantages taught from page 1, line 39, to page 2, line 19.

Allowable Subject Matter

Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 10 and 12-16 and 20 and allowed.

Claim 17 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claims 11 and 18-19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest compositions comprising an electro luminescent phosphor and the recited radiation curable components in the recited weight percents or the specific method for preparation of the composition set forth in claim 20.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

WO 97/31051 discloses radiation polymerizable compositions containing a luminescing agent, specifically a fluorescing agent, wherein the luminescing effect can be increased while maintaining or improving the cure properties.

Lu et al (4,188,449) disclose compositions comprising particles of a phosphor dissolved in a radiation curable binder. The binder materials can be acrylated epoxy and/or acrylated urethane oligomers mixed with (meth)acrylate monomers, a photoinitiator and a void generating agent, such as a volatile solvent. Isobornyl(meth)acrylate is not mentioned.

JP 4267097 (Abstract) discloses an electro luminescent (EL) element prepared from a UV curing resin comprising an epoxy acrylate , isobornyl methacrylate, tri-acryloyloxyethyl isocyanate and a polymerization initiator. Addition of an EL phosphor to the UV curable composition is not mentioned.

Wary (4,513,023) discloses a UV curable dielectric matrix comprising particles of EL phosphor in a UV curable dielectric composition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 703 308 0040. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703 308 2462. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

Susan W Berman
Primary Examiner
Art Unit 1711

SB
October 6, 2003